

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 26.07.2021

Version 14.3

**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Catalogue No.	114773
Product name	Nitrate Test Method: photometric 0.2 - 20.0 mg/l NO <sub>3</sub> -N 0.9 - 88.5 mg/l NO <sub>3</sub> <sup>-</sup> Spectroquant®
	NO <sub>3</sub> - 1
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	99-10-5

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).
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**1.3 Details of the supplier of the safety data sheet**

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Responsible Department	LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

**1.4 Emergency telephone number** **Please contact the regional company representation in your country.****SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Skin irritation, Category 2, H315

Eye irritation, Category 2, H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

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according to Regulation (EC) No. 1907/2006

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NO<sub>3</sub><sup>-</sup> 1

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## 2.2 Label elements

### Labelling.(REGULATION (EC) No 1272/2008)

*Hazard pictograms*



*Signal word*  
Warning

*Hazard statements*

H315 Causes skin irritation.  
H319 Causes serious eye irritation.

*Precautionary statements*

Prevention

P264 Wash skin thoroughly after handling.  
P280 Wear protective gloves/ eye protection/ face protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.

### Reduced labelling (≤125 ml)

*Hazard pictograms*



*Signal word*  
Warning

CAS-No. 99-10-5

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula C<sub>7</sub>H<sub>6</sub>O<sub>4</sub> (Hill)  
EC-No. 202-730-7  
Molar mass 154,12 g/mol

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NO<sub>3</sub><sup>-</sup> 1

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## Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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3,5-dihydroxybenzoic acid (>= 90 % - <= 100 % )		
99-10-5	*)	

\*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

*General advice*

Show this safety data sheet to the doctor in attendance.

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 4.2 Most important symptoms and effects, both acute and delayed

We have no description of any symptoms of toxicity.

### 4.3 Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

*Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Combustible.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

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NO<sub>3</sub>- 1

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Development of hazardous combustion gases or vapours possible in the event of fire.

## 5.3 Advice for firefighters

*Special protective equipment for firefighters*

In the event of fire, wear self-contained breathing apparatus.

*Further information*

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### 6.2 Environmental precautions

Do not empty into drains.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

*Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

### 7.2 Conditions for safe storage, including any incompatibilities

*Storage conditions*

Tightly closed.

Recommended storage temperature see product label.

The data applies to the entire pack.

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

### 8.2 Exposure controls

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NO<sub>3</sub><sup>-</sup> 1

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## Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

## Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

### Eye/face protection

Protective spectacles with side shields, arc goggles, or other approved eye protection. Safety glasses

### Hand protection

full contact:

Glove material: Nitrile rubber  
Glove thickness: 0,11 mm  
Break through time: 480 min

splash contact:

Glove material: Nitrile rubber  
Glove thickness: 0,11 mm  
Break through time: 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

### Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 1 (acc. to DIN 3181) for solid particles of inert substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

## Environmental exposure controls

Do not empty into drains.

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NO<sub>3</sub><sup>-</sup> 1

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	solid
Colour	beige
Odour	No strong odour known.
Odour Threshold	Not applicable
pH	No information available.
Melting point/range	236 - 238 °C
Boiling point	No information available.
Flash point	200 °C
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	No information available.
Relative density	No information available.
Water solubility	84 g/l at 20 °C soluble
Partition coefficient: n-octanol/water	log Pow: 0,86 (experimental) (External MSDS) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	> 236 °C

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Viscosity, dynamic No information available.  
Explosive properties Not classified as explosive.  
Oxidizing properties none

## 9.2 Other data

Ignition temperature > 500 °C  
Method: DIN 51794  
Bulk density ca.700 kg/m<sup>3</sup>

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Violent reactions possible with:  
Fluorine, Oxygen, Strong oxidizing agents

### 10.4 Conditions to avoid

Strong heating.

### 10.5 Incompatible materials

no information available

### 10.6 Hazardous decomposition products

no information available

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

*Acute oral toxicity*  
LD50 Rat: 4.160 mg/kg (External MSDS)

*Acute inhalation toxicity*  
This information is not available.

*Acute dermal toxicity*  
This information is not available.

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## *Skin irritation*

Rabbit

Result: No irritation  
(External MSDS)

## *Eye irritation*

Rabbit

Result: No eye irritation  
(External MSDS)

## *Sensitisation*

This information is not available.

## *Germ cell mutagenicity*

### *Genotoxicity in vitro*

#### Ames test

Result: negative  
(External MSDS)

## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

This information is not available.

## *Teratogenicity*

This information is not available.

## *Specific target organ toxicity - single exposure*

This information is not available.

## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Aspiration hazard*

This information is not available.

### **11.2 Further information**

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12. Ecological information**

### **12.1 Toxicity**

#### *Toxicity to fish*

LC0 *Leuciscus idus* (Golden orfe): 500 mg/l; 48 h (External MSDS)

#### *Toxicity to daphnia and other aquatic invertebrates*

Immobilization EC50 *Daphnia magna* (Water flea): 616 mg/l; 48 h (ECOTOX Database)

#### *Toxicity to bacteria*

EC0 *Pseudomonas fluorescens*: 100 mg/l (External MSDS)

### **12.2 Persistence and degradability**



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## *Biodegradability*

> 80 %

OECD Test Guideline 301D

Readily biodegradable

## **12.3 Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: 0,86

(experimental)

(External MSDS) Bioaccumulation is not expected.

## **12.4 Mobility in soil**

No information available.

## **12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

## **12.6 Other adverse effects**

Discharge into the environment must be avoided.

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## **SECTION 13. Disposal considerations**

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## **SECTION 14. Transport information**

### **Land transport (ADR/RID)**

<b>14.1 UN number</b>	UN 1830
<b>14.2 Proper shipping name</b>	SULPHURIC ACID
<b>14.3 Class</b>	8
<b>14.4 Packing group</b>	II
<b>14.5 Environmentally hazardous</b>	--
<b>14.6 Special precautions for user</b>	yes
Tunnel restriction code	E

### **Inland waterway transport (ADN)**

Not relevant

### **Air transport (IATA)**

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NO<sub>3</sub><sup>-</sup> 1

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**14.1 UN number** UN 1830  
**14.2 Proper shipping name** SULPHURIC ACID  
**14.3 Class** 8  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** no

#### Sea transport (IMDG)

**14.1 UN number** UN 1830  
**14.2 Proper shipping name** SULPHURIC ACID  
**14.3 Class** 8  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes  
EmS F-A S-B

**14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

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## SECTION 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### *EU regulations*

Major Accident Hazard ZEU\_SEVES3  
Legislation Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

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Substances of very high concern (SVHC)

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of  $\geq 0.1\%$  (w/w).

Storage class 8B

The data applies to the entire pack.

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

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## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H315 Causes skin irritation.  
H319 Causes serious eye irritation.

### Training advice

Provide adequate information, instruction and training for operators.

### Labelling

*Hazard pictograms*



*Signal word*

Warning

*Hazard statements*

H315 Causes skin irritation.  
H319 Causes serious eye irritation.

*Precautionary statements*

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
P313 Get medical advice/ attention.

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## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

## Regional representation

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact [mlsbranding@sial.com](mailto:mlsbranding@sial.com).

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according to Regulation (EC) No. 1907/2006

Revision Date 26.07.2021

Version 14.3

**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

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	NO <sub>3</sub> -2
REACH Registration Number	01-2119458838-20-XXXX
CAS-No.	7664-93-9

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).
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**1.3 Details of the supplier of the safety data sheet**

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Responsible Department	LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

**1.4 Emergency telephone number** **Please contact the regional company representation in your country.****SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Corrosive to metals, Category 1, H290  
Skin corrosion, Sub-category 1A, H314  
Serious eye damage, Category 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

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NO<sub>3</sub>-2

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## 2.2 Label elements

### Labelling.(REGULATION (EC) No 1272/2008)

#### Hazard pictograms



#### Signal word

Danger

#### Hazard statements

H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.

#### Precautionary statements

##### Prevention

P234 Keep only in original packaging.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/  
hearing protection.

##### Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated  
clothing. Rinse skin with water.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for  
breathing. Immediately call a POISON CENTER/ doctor.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.

### Reduced labelling (≤125 ml)

#### Hazard pictograms



#### Signal word

Danger

#### Hazard statements

H314 Causes severe skin burns and eye damage.

#### Precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.  
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin  
with water.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
Immediately call a POISON CENTER/ doctor.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact  
lenses, if present and easy to do. Continue rinsing.

Contains: sulphuric acid

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NO<sub>3</sub>-2

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*Index-No.* 016-020-00-8

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature Sulfuric acid solution.

### 3.1 Substance

Formula H<sub>2</sub>SO<sub>4</sub> H<sub>2</sub>O<sub>4</sub>S H<sub>2</sub>O<sub>4</sub>S (Hill)  
Index-No. 016-020-00-8  
EC-No. 231-639-5

### Hazardous components (REGULATION (EC) No 1272/2008)

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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sulphuric acid (>= 90 % - <= 100 % )

*Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.*

7664-93-9	01-2119458838-20-XXXX	Corrosive to metals, Category 1, H290 Skin corrosion, Category 1A, H314
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For the full text of the H-Statements mentioned in this Section, see Section 16.

### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

*General advice*

First aider needs to protect himself. Show this safety data sheet to the doctor in attendance.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

### 4.2 Most important symptoms and effects, both acute and delayed

Risk of blindness!

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NO<sub>3</sub>-2

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Irritation and corrosion, Cough, Nausea, Vomiting, Shortness of breath, Diarrhoea, Pain

#### 4.3 Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

*Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Not combustible.

Fire may cause evolution of:

Sulphur oxides

Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

*Special protective equipment for firefighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemisorb® H<sup>+</sup>, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

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NO<sub>3</sub>-2

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## 6.4 Reference to other sections

Indications about waste treatment see section 13.

---

## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

#### *Hygiene measures*

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### 7.2 Conditions for safe storage, including any incompatibilities

#### *Requirements for storage areas and containers*

No metal containers.

#### *Storage conditions*

Tightly closed.

Recommended storage temperature see product label.

The data applies to the entire pack.

### 7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

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## SECTION 8. Exposure controls/personal protection

### 8.1 Control parameters

#### **Derived No Effect Level (DNEL)**

Worker DNEL, acute	Local effects	inhalation	0,1 mg/m <sup>3</sup>
Worker DNEL, longterm	Local effects	inhalation	0,05 mg/m <sup>3</sup>

#### **Predicted No Effect Concentration (PNEC)**

PNEC Fresh water	0,0025 mg/l
PNEC Fresh water sediment	0,002 mg/kg
PNEC Marine water	0,00025 mg/l
PNEC Marine sediment	0,002 mg/kg
PNEC Sewage treatment plant	8,8 mg/l

### 8.2 Exposure controls

#### **Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

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NO<sub>3</sub>-2

---

## Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

### *Eye/face protection*

Protective spectacles with side shields, arc goggles, or other approved eye protection. Tightly fitting safety goggles

### *Hand protection*

full contact:

Glove material: Viton®  
Glove thickness: 0,7 mm  
Break through time: 480 min

splash contact:

Glove material: butyl-rubber  
Glove thickness: 0,7 mm  
Break through time: 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 890 Vitoject® (full contact), KCL 898 Butoject® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

### *Respiratory protection*

required when vapours/aerosols are generated.

Recommended Filter type: Filter B-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

## Environmental exposure controls

Do not let product enter drains.

---

## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless

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NO<sub>3</sub>-2

---

Odour Threshold	Not applicable
pH	0,3 at 49 g/l 25 °C
Melting point	-20 °C
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	ca.0,0001 hPa at 20 °C
Relative vapour density	ca.3,4
Density	1,84 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble, (caution ! development of heat)
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	ca.24 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	Oxidizing potential

## 9.2 Other data

Ignition temperature Not applicable

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NO<sub>3</sub>-2

---

Bulk density Not applicable  
Corrosion May be corrosive to metals.

---

## SECTION 10. Stability and reactivity

### 10.1 Reactivity

has a corrosive effect  
strong oxidising agent

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists with the following substances:

Alkali metals, alkali compounds, Ammonia, Aldehydes, acetonitrile, Alkaline earth metals, alkalines, Acids, alkaline earth compounds, Metals, metal alloys, Oxides of phosphorus, phosphorus, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvent, acetylidene, Nitriles, organic nitro compounds, anilines, Peroxides, picrates, nitrides, lithium silicide, iron(III) compounds, bromates, chlorates, Amines, perchlorates, hydrogen peroxide, Water

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

animal/vegetable tissues, Metals  
Contact with metals liberates hydrogen gas.

### 10.6 Hazardous decomposition products

in the event of fire: See section 5.

---

## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

*Acute oral toxicity*

LD50 Rat: 2.140 mg/kg (ECHA)

*Acute inhalation toxicity*

Based on available data the classification criteria are not met.  
Corrosive to respiratory system.

*Acute dermal toxicity*

study scientifically unjustified

*Skin irritation*

Causes severe burns.

---

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NO<sub>3</sub>-2

---

## *Eye irritation*

Causes serious eye damage.  
Risk of blindness!

## *Sensitisation*

Based on available data the classification criteria are not met.

## *Germ cell mutagenicity*

### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(HSDB)

## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

This information is not available.

## *Teratogenicity*

This information is not available.

## *Specific target organ toxicity - single exposure*

This information is not available.

## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Repeated dose toxicity*

Rat

female

Inhalation

dust/mist

28 d

daily

LOAEL: 0,0003 mg/l

OECD Test Guideline 412

Subacute toxicity

## *Aspiration hazard*

This information is not available.

## **11.2 Further information**

After inhalation of aerosols: damage to the affected mucous membranes. After skin contact: severe burns with formation of scabs. After eye contact: burns, corneal lesions. After swallowing: severe pain (risk of perforation!), nausea, vomiting and diarrhoea. After a latency period of several weeks possibly pyloric stenosis. Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

---

## **SECTION 12. Ecological information**

### **12.1 Toxicity**

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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NO<sub>3</sub>-2

---

### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 Daphnia magna (Water flea): > 100 mg/l; 48 h

Analytical monitoring: yes

OECD Test Guideline 202

### *Toxicity to algae*

static test EC50 Desmodesmus subspicatus (green algae): > 100 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

## **12.2 Persistence and degradability**

### *Biodegradability*

Hydrolysis

## **12.3 Bioaccumulative potential**

No information available.

## **12.4 Mobility in soil**

No information available.

## **12.5 Results of PBT and vPvB assessment**

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

## **12.6 Other adverse effects**

### *Additional ecological information*

Biological effects:

Harmful effect due to pH shift.

Caustic even in diluted form.

Does not cause biological oxygen deficit.

Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities.

Neutralisation possible in waste water treatment plants.

Discharge into the environment must be avoided.

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---

**SECTION 13. Disposal considerations**

*Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

---

**SECTION 14. Transport information**

**Land transport (ADR/RID)**

**14.1 UN number** UN 1830  
**14.2 Proper shipping name** SULPHURIC ACID  
**14.3 Class** 8  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes  
Tunnel restriction code E

**Inland waterway transport (ADN)**

Not relevant

**Air transport (IATA)**

**14.1 UN number** UN 1830  
**14.2 Proper shipping name** SULPHURIC ACID  
**14.3 Class** 8  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** no

**Sea transport (IMDG)**

**14.1 UN number** UN 1830  
**14.2 Proper shipping name** SULPHURIC ACID  
**14.3 Class** 8  
**14.4 Packing group** II  
**14.5 Environmentally hazardous** --  
**14.6 Special precautions for user** yes

# SAFETY DATA SHEET

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---

EmS F-A S-B

## 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

---

## SECTION 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### *EU regulations*

Major Accident Hazard ZEU\_SEVES3  
Legislation Not applicable

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances not regulated  
that deplete the ozone layer

Regulation (EC) No 850/2004 of the not regulated  
European Parliament and of the Council of 29  
April 2004 on persistent organic pollutants  
and amending Directive 79/117/EEC

Substances of very high concern (SVHC) This product does not contain  
substances of very high concern  
according to Regulation (EC) No  
1907/2006 (REACH), Article 57  
above the respective regulatory  
concentration limit of  $\geq 0.1\%$   
(w/w).

Storage class 8B  
The data applies to the entire pack.

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

---

## SECTION 16. Other information

### Full text of H-Statements referred to under sections 2 and 3.

H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.

### Training advice



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---

Provide adequate information, instruction and training for operators.

## Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sulphuric acid

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

## Regional representation

This information is given on the authorised Safety Data Sheet for your country.

---

*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

## EXPOSURE SCENARIO 1 (Industrial use)

---

### 1. Industrial use (Reagent for analysis)

#### Sectors of end-use

SU 3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU9 Manufacture of fine chemicals

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NO<sub>3</sub>-2

---

*SU 10* Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

## Chemical product category

*PC21* Laboratory chemicals

## Process categories

*PROC1* Use in closed process, no likelihood of exposure  
*PROC2* Use in closed, continuous process with occasional controlled exposure  
*PROC3* Use in closed batch process (synthesis or formulation)  
*PROC4* Use in batch and other process (synthesis) where opportunity for exposure arises  
*PROC5* Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)  
*PROC8a* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities  
*PROC8b* Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities  
*PROC9* Transfer of substance or preparation into small containers (dedicated filling line, including weighing)  
*PROC10* Roller application or brushing  
*PROC15* Use as laboratory reagent

## Environmental Release Categories

*ERC1* Manufacture of substances  
*ERC2* Formulation of preparations  
*ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)  
*ERC6b* Industrial use of reactive processing aids

---

## 2. Contributing scenarios: Operational conditions and risk management measures

### 2.1 Contributing scenario controlling environmental exposure for: ERC1

#### Amount used

Daily amount per site 1500 t

#### Environment factors not influenced by risk management

Dilution Factor (River) 10

#### Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year 365

#### Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.  
Water Solutions with low pH-value must be neutralized before discharge.

#### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant

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NO<sub>3</sub>-2

---

Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

---

## 2.2 Contributing scenario controlling environmental exposure for: ERC2

### Amount used

Annual amount per site 300000 t

### Environment factors not influenced by risk management

Dilution Factor (River) 10

### Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year 365

### Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.  
Water Solutions with low pH-value must be neutralized before discharge.

### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

---

## 2.3 Contributing scenario controlling environmental exposure for: ERC6a

### Amount used

Annual amount per site 300000 t

### Environment factors not influenced by risk management

Dilution Factor (River) 10

### Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year 365

### Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.  
Water Solutions with low pH-value must be neutralized before discharge.

---

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NO<sub>3</sub>-2

---

## Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Municipal sewage treatment plant  
Plant  
Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

---

## 2.4 Contributing scenario controlling environmental exposure for: ERC6b

### Amount used

Annual amount per site 100000 t

### Environment factors not influenced by risk management

Dilution Factor (River) 10

### Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year 365

### Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.  
Water Solutions with low pH-value must be neutralized before discharge.

## Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Municipal sewage treatment plant  
Plant  
Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

---

## 2.5 Contributing scenario controlling worker exposure for: PROC1

### Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 % (unless stated differently).  
Physical Form (at time of use) Low volatile liquid  
Process Temperature < 130 °C

### Frequency and duration of use

Frequency of use 8 hours/day

### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV)

---

# SAFETY DATA SHEET

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NO<sub>3</sub>-2

---

## Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

## Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

---

## 2.6 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15

### Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 % (unless stated differently).  
Physical Form (at time of use) Low volatile liquid  
Process Temperature < 130 °C

### Frequency and duration of use

Frequency of use 8 hours/day

### Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

## Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

## Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

---

## 3. Exposure estimation and reference to its source

### Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC1		All compartments	< 1	EUSES
2.2	ERC2		All compartments	< 1	EUSES
2.3	ERC6a		All compartments	< 1	EUSES
2.4	ERC6b		All compartments	< 1	EUSES

### Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.5	PROC1	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA

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2.6	PROC2	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC3	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC4	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC5	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC8a	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC8b	acute, inhalative, local	0,20	ECETOC TRA
		longterm, inhalative, local	0,41	ECETOC TRA
2.6	PROC9	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC10	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC15	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

For (other) local effects risk management measures are based on qualitative risk characterisation.

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---

## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at [www.merckmillipore.com/scideex](http://www.merckmillipore.com/scideex).

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NO<sub>3</sub>-2

---

## EXPOSURE SCENARIO 2 (Professional use)

---

### 1. Professional use (Reagent for analysis)

#### Sectors of end-use

*SU 22* Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

#### Chemical product category

*PC21* Laboratory chemicals

#### Process categories

*PROC15* Use as laboratory reagent

#### Environmental Release Categories

*ERC2* Formulation of preparations

*ERC6a* Industrial use resulting in manufacture of another substance (use of intermediates)

*ERC6b* Industrial use of reactive processing aids

---

### 2. Contributing scenarios: Operational conditions and risk management measures

#### 2.1 Contributing scenario controlling environmental exposure for: ERC2

##### Amount used

Annual amount per site 300000 t

##### Environment factors not influenced by risk management

Dilution Factor (River) 10

##### Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year 365

##### Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.  
Water Solutions with low pH-value must be neutralized before discharge.

##### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Municipal sewage treatment plant  
Plant  
Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

---

#### 2.2 Contributing scenario controlling environmental exposure for: ERC6a



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0.9 - 88.5 mg/l NO<sub>3</sub><sup>-</sup> Spectroquant®  
NO<sub>3</sub>-2

---

## Amount used

Annual amount per site 300000 t

## Environment factors not influenced by risk management

Dilution Factor (River) 10

## Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year 365

## Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.  
Water Solutions with low pH-value must be neutralized before discharge.

## Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

---

## 2.3 Contributing scenario controlling environmental exposure for: ERC6b

### Amount used

Annual amount per site 100000 t

### Environment factors not influenced by risk management

Dilution Factor (River) 10

### Other given operational conditions affecting environmental exposure

Continuous use/release  
Number of emission days per year 365

### Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.  
Water Solutions with low pH-value must be neutralized before discharge.

### Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant  
Flow rate of sewage treatment plant effluent 2.000 m<sup>3</sup>/d  
Sludge Treatment Sewage sludge should not be applied to natural soils.

---

**SAFETY DATA SHEET**  
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NO<sub>3</sub>-2

**2.4 Contributing scenario controlling worker exposure for: PROC15**

**Product characteristics**

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 % (unless stated differently).  
Physical Form (at time of use) Low volatile liquid  
Process Temperature < 130 °C

**Frequency and duration of use**

Frequency of use < 4 hours/day

**Other operational conditions affecting workers exposure**

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

**Organisational measures to prevent /limit releases, dispersion and exposure**

Avoid carrying out operation for more than 4 hours.

**Conditions and measures related to personal protection, hygiene and health evaluation**

Wear suitable gloves tested to EN374.

**3. Exposure estimation and reference to its source**

**Environment**

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2		All compartments	< 1	EUSES
2.2	ERC6a		All compartments	< 1	EUSES
2.3	ERC6b		All compartments	< 1	EUSES

**Workers**

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC15	acute, inhalative, local	0,82	ECETOC TRA
		longterm, inhalative, local	0,98	ECETOC TRA

For (other) local effects risk management measures are based on qualitative risk characterisation.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114773
Product name	Nitrate Test Method: photometric 0.2 - 20.0 mg/l NO <sub>3</sub> -N 0.9 - 88.5 mg/l NO <sub>3</sub> <sup>-</sup> Spectroquant® NO <sub>3</sub> -2

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## 4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at [www.merckmillipore.com/scideex](http://www.merckmillipore.com/scideex).

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